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A REVIEW OF THE NORTH AMERICAN SPECIES OF PRONUBA AND PRODOXUS.

BY HARRISON G. DYAR.

The late Dr. C. V. Riley was especially interested in these genera and has published much valuable and detailed matter on their structure and habits. His specific descriptions are, however, more or less incomplete or scattered, except in his paper in the third report of the Missouri Botanical Garden (pp. 99-158, pls. 34-43, 1892). As this is a botanical journal, not usually accessible to entomologists, and as Riley gives no synoptic tables, I have thought it advisable to treat the forms from the standpoint of species in a brief synoptic form. It will only be necessary to refer to Dr. Riley's account of the relations of these insects to their host plants.

Genus **Pronuba** Riley.

SYNOPSIS OF SPECIES.

Fore wings white.

Fore wings unspotted.....**yuccasella.**

Fore wings spotted.

Marginal spots distinct, separate**maculata.**

Marginal spots clouded, confluent.....var. **apicella.**

Fore wings not white.

Fore wings dead black.....**aterrima.**

Fore wings obscure, dull gray.....**paradoxa.**

Pronuba yuccasella Riley.

This well-known species is easily recognized by its pure white fore wings and gray hind wings with white fringe, but it is so similar to *Prodoxus quinquepunctellus* that it is very difficult to distinguish set specimens. The pupæ are entirely unlike.

Pronuba maculata Riley.

The type specimens are from Caliente, Kern Co., Cal. The variety *apicella* is from Los Angeles Co., Cal., from seeds of *Yucca whipplei*. The black subapical spot of typical *maculata* is here produced into a blotch and a black clouding confuses and joins the marginal spots.

Pronuba aterrima Trelease.

Described as a variety of *maculata* (4th Rept. Mo. Bot. Gard., 216. note, 1893), but represents a distinct species, I should think. The description reads:

"*Pronuba maculata*, var. *aterrima*, n. var. Characters of the species, but the chitinized parts smoky brown, and the scales of a dead black color throughout or a few pale ones near the tips of the primaries. Living as a larva in the forming seeds of *Hesperoyucca whipplei* var. *graminifolia*, the flowers of which are pollinated by the female imago. In the foothills immediately north of San Bernardino, Cal."

Pronuba paradoxa Riley.

This was mentioned by Riley as *paradoxa* (1889) but described by him later as *synthetica* (1892). There is no description accompanying the first name, yet enough is given to determine the species, since there can hardly be a doubt of the identity of the species of *Pronuba* which fertilizes *Yucca brevifolia* in the Mojave desert, and these points are mentioned. The first name will hold therefore.

Genus Prodoxus Riley.

SYNOPSIS OF SPECIES.

Wings with ground color white.

Fore wing white, rarely with a few black dots.

Medium-sized species, hind wings gray with white fringe.

Smaller, expanse 15-22 mm..... **quinquepunctellus**.

Larger, 25 mm..... **intermedius**.

Small species, hind wings white with gray costal border..... **sordidus**.

Fore wing with conspicuous dark markings, rarely obsolescent.

Wings without transverse median bands.

A marginal black border before fringe..... **marginatus**.

Outer half of wing powdered with black..... **pulverulentus**.

Wings with transverse median bands.

Bands forming two Y-shaped marks on costa..... **reticulatus**.

Bands forming one Y-shaped mark on costa.

Markings distinct.

The two basal bands separate..... **coloradensis**.

These bands joined, forming a Y-shaped mark on internal margin..... var. **confluens**.

Markings faint, obsolescent..... var. **lautus**.

Bands not forming a Y-shaped mark on costa.

A Y-shaped mark resting on anal angle..... **y-inversa**.

Wings gray or brown.

Fore wing shining gray, rather light; hind wing blackish..... **cinereus**.

Fore wing dark gray; hind wing pellucid..... **anesens**.

The above synopsis will serve to distinguish the forms. *P. intermedius* seems rather poorly separated from *quinquepunctellus*, the only obvious difference being the size; but Dr. Riley figures apparently marked differences in the shape of the ovipositor. The other species

are obviously distinct. References to the literature will be found in Bulletin 52, U. S. N. M., except to the paper in the Report of the Missouri Botanical Garden, referred to above.

THE REAL LARVA OF XANTHOPASTIS TIMAIS CRAMER.

BY HARRISON G. DYAR.

A little while ago I described in this JOURNAL (Vol. X, p. 125) a larva from Florida under the name of *timais*. Since then Mr. E. A. Schwarz has found larvæ in Cuba which he has bred, and he brings me a specimen in alcohol which he assures me is the true larva of the species. It is not like the larva described by me, except in a superficial way, and I therefore publish the following in correction. What the larva is that I described has not yet been ascertained.

Larva.—Head rounded, slightly wider than high, scarcely bilobed; setæ coarse, black; light red, a round black spot on seta ii and one over eye, jaws black-lined. Body cylindrical, subequal, joint 12 scarcely enlarged, feet normal, equal. Cervical shield, bases of thoracic feet, abdominal feet and bases, posterior half of joint 12 and all the ground color of 13, light red. Venter pale; rest of body black, spotted with white. Cervical shield with black spots on the tubercles; setæ large and coarse; tubercles large, somewhat elevated, black. The white spots consist of three transverse rows per segment, the two anterior rows of small spots, the posterior row of larger spots, in the positions of the usual lines, dorsal, subdorsal, suprastigmatal, substigmatal and one at tubercle vi. Tubercle iv at the center of the spiracle. Three black spots on the leg base at the setæ; claspers black; joints 12 and 13 heavily black-spotted at the tubercles. Spiracles black, that of joint 2 with white posterior border. Width of head 3.2 mm.

The larva described by me differs in the tubercles being obscure and reduced, the setæ fine and short; the head is higher and the black spot on it is in a different place, the cervical shield is uncornified and is black with some red in the neck only; the distribution of the whitish marks on the body is very different and the red color at the anal end is less extensive and not spotted by black tubercles.